**1.Write a C program to find one's complement of a binary number.**

**CODE –**

**#include<stdio.h>**

**#include<string.h>**

**void main()**

**{**

**int i, error = 0, size= 8;**

**char bin[size+1], onecompl[size+1];**

**printf("Enter %d bit binary value: ", size);**

**gets(bin);**

**for(i=0;i<size;i++)**

**{**

**if(bin[i]== '1')**

**{**

**onecompl[i]='0';**

**}**

**else if(bin[i]== '0')**

**{onecompl[i]= '1';}**

**else**

**{printf("invalid input\n");**

**error=1;}**

**}**

**onecompl[8] = '\0';**

**if (error==0)**

**{**

**printf("Ones compliment of given binary number = %s",onecompl);**

**}**

**}**

**2.Write a C program to find two's complement of a binary number.**

**CODE –**

**#include<stdio.h>**

**#include<string.h>**

**void main()**

**{**

**int i, error = 0, size= 8, carry = 1;**

**char bin[size+1], onecompl[size+1], twocompl[size+1];**

**printf("Enter %d bit binary value: ", size);**

**gets(bin);**

**for(i=0;i<size;i++)**

**{**

**if(bin[i]== '1')**

**{**

**onecompl[i]='0';**

**}**

**else if(bin[i]== '0')**

**{onecompl[i]= '1';}**

**else**

**{printf("invalid input\n");**

**error=1;}**

**}**

**onecompl[8] = '\0';**

**for (i = 7; i>= 0; i--)**

**{**

**if(onecompl[i] == '1' && carry == 1)**

**{twocompl[i] = '0';}**

**else if(onecompl[i] == '0' && carry == 1)**

**{twocompl[i] = '1';**

**carry = 0;}**

**else{twocompl[i] = onecompl[i];}**

**}**

**twocompl[8] = '\0';**

**if (error==0)**

**{**

**printf("Twos compliment of given binary number = %s", twocompl);**

**}**

**}**

**3. Write a C program to convert Binary to Octal number system.**

**CODE –**

**#include<stdio.h>**

**void main()**

**{**

**int octal = 0, rem, binary, place =1;**

**int octalval[] = {000, 001, 010, 011, 100, 101, 110, 111};**

**printf("Enter any binary number: ");**

**scanf("%d", &binary);**

**while (binary > 0)**

**{**

**rem = binary % 1000;**

**for(int i = 0; i<8; i ++)**

**{**

**if (octalval[i] == rem)**

**{**

**octal += (i\*place);**

**break;**

**}**

**}**

**binary /= 1000;**

**place \*= 10;**

**}**

**printf("The octal equivalent is: %d", octal);**

**}**

**4. Write a C program to convert Binary to Decimal number system.**

**CODE –**

**#include<stdio.h>**

**#include<math.h>**

**void main()**

**{**

**int decimal = 0, rem, binary, place =0;**

**printf("Enter any binary number: ");**

**scanf("%d", &binary);**

**while (binary > 0)**

**{**

**if (binary%10 == 1)**

**{**

**decimal += pow(2,place);**

**}**

**place++;**

**binary /= 10;**

**}**

**printf("The decimal equivalent is: %d", decimal);**

**}**

**5. Write a C program to convert Binary to Hexadecimal number system.**

**CODE –**

**#include<stdio.h>**

**#include<string.h>**

**void main()**

**{**

**int rem, binary, place =0;**

**int hexval[] = {0, 1, 10, 11, 100, 101, 110, 111, 1000, 1001, 1010, 1011, 1100, 1101, 1110, 1111};**

**char hex[20];**

**printf("Enter any binary number: ");**

**scanf("%d", &binary);**

**while (binary != 0)**

**{**

**rem = binary % 10000;**

**for (int i = 0; i < 16; i++)**

**{**

**if (hexval[i] == rem)**

**{**

**if (i< 10)**

**{**

**hex[place] = (char)(i + 48);**

**}**

**else**

**{**

**hex[place] = (char)((i-10) + 65);**

**}**

**place ++;**

**break;**

**}**

**}**

**binary /= 10000;**

**}**

**hex[place] = '\0';**

**strrev(hex);**

**printf("The hexadecimal equivalent is: %s", hex);**

**}**

**6. Write a C program to convert Octal to Binary number system.**

**CODE –**

**#include<stdio.h>**

**void main()**

**{**

**int octal, rem, binary = 0, place =1;**

**int octalval[] = {000, 001, 010, 011, 100, 101, 110, 111};**

**printf("Enter any octal number: ");**

**scanf("%d", &octal);**

**while (octal > 0)**

**{**

**rem = octal % 10;**

**binary += (octalval[rem] \* place);**

**octal /= 10;**

**place \*= 1000;**

**}**

**printf("The binary equivalent is: %d", binary);**

**}**

**7. Write a C program to convert Octal to Decimal number system.**

**CODE –**

**#include<stdio.h>**

**#include<math.h>**

**void main()**

**{**

**int octal, rem, decimal = 0, place =0;**

**printf("Enter any octal number: ");**

**scanf("%d", &octal);**

**while (octal > 0)**

**{**

**rem = octal % 10;**

**decimal += pow(8,place)\*rem;**

**octal /= 10;**

**place ++;**

**}**

**printf("The decimal equivalent is: %d", decimal);**

**}**

**8. Write a C program to convert Octal to Hexadecimal number system.**

**CODE –**

**#include<stdio.h>**

**#include<string.h>**

**#include<math.h>**

**void main()**

**{**

**int octal,rem, decimal = 0, place =0;**

**char hex[50];**

**char hexval[50] = {'0','1', '2', '3', '4', '5', '6', '7', '8', '9', 'A', 'B', 'C', 'D', 'E', 'F'};**

**printf("Enter any octal number: ");**

**scanf("%d", &octal);**

**while (octal > 0)**

**{**

**rem = octal % 10;**

**decimal += pow(8,place)\*rem;**

**octal /= 10;**

**place ++;**

**}**

**place = 0;**

**while (decimal > 0)**

**{**

**hex[place] = hexval[decimal % 16];**

**decimal /= 16;**

**place ++;**

**}**

**hex[place] = '\0';**

**strrev(hex);**

**printf("The hexadecimal equivalent is: ");**

**puts(hex);**

**}**

**9. Write a C program to convert Decimal to Binary number system.**

**CODE –**

**#include<stdio.h>**

**#include<math.h>**

**void main()**

**{**

**int rem, binary = 0, decimal = 0, place =1;**

**printf("Enter any decimal number: ");**

**scanf("%d", &decimal);**

**while (decimal > 0)**

**{**

**rem = decimal % 2;**

**binary = (rem \* place) + binary;**

**decimal /= 2;**

**place = place \* 10;**

**}**

**printf("The binary equivalent is: %d", binary);**

**}**

**10. Write a C program to convert Decimal to Octal number system.**

**CODE –**

**#include<stdio.h>**

**#include<math.h>**

**void main()**

**{**

**int rem, octal = 0, decimal = 0, place =1;**

**printf("Enter any decimal number: ");**

**scanf("%d", &decimal);**

**while (decimal > 0)**

**{**

**rem = decimal % 8;**

**octal = (rem \* place) + octal;**

**decimal /= 8;**

**place = place \* 10;**

**}**

**printf("The octal equivalent is: %d", octal);**

**}**

**11. Write a C program to convert Decimal to Hexadecimal number system.**

**CODE –**

**#include<stdio.h>**

**#include<string.h>**

**#include<math.h>**

**void main()**

**{**

**int rem, decimal = 0, place =0;**

**char hex[50];**

**char hexval[50] = {'0','1', '2', '3', '4', '5', '6', '7', '8', '9', 'A', 'B', 'C', 'D', 'E', 'F'};**

**printf("Enter any decimal number: ");**

**scanf("%d", &decimal);**

**while (decimal > 0)**

**{**

**hex[place] = hexval[decimal % 16];**

**decimal /= 16;**

**place ++;**

**}**

**hex[place] = '\0';**

**strrev(hex);**

**printf("The hexadecimal equivalent is: ");**

**puts(hex);**

**}**

**12. Write a C program to convert Hexadecimal to Binary number system.**

**CODE –**

**#include <stdio.h>**

**#include <string.h>**

**void main()**

**{**

**char hex[17], bin[65] = "";**

**int i = 0;**

**printf("Enter any hexadecimal number: ");**

**gets(hex);**

**strupr(hex);**

**for(i=0; hex[i]!='\0'; i++)**

**{**

**switch(hex[i])**

**{**

**case '0':**

**strcat(bin, "0000");**

**break;**

**case '1':**

**strcat(bin, "0001");**

**break;**

**case '2':**

**strcat(bin, "0010");**

**break;**

**case '3':**

**strcat(bin, "0011");**

**break;**

**case '4':**

**strcat(bin, "0100");**

**break;**

**case '5':**

**strcat(bin, "0101");**

**break;**

**case '6':**

**strcat(bin, "0110");**

**break;**

**case '7':**

**strcat(bin, "0111");**

**break;**

**case '8':**

**strcat(bin, "1000");**

**break;**

**case '9':**

**strcat(bin, "1001");**

**break;**

**case 'A':**

**strcat(bin, "1010");**

**break;**

**case 'B':**

**strcat(bin, "1011");**

**break;**

**case 'C':**

**strcat(bin, "1100");**

**break;**

**case 'D':**

**strcat(bin, "1101");**

**break;**

**case 'E':**

**strcat(bin, "1110");**

**break;**

**case 'F':**

**strcat(bin, "1111");**

**break;**

**default:**

**printf("ERROR.");**

**}**

**}**

**printf("Binary number = %s", bin);**

**}**

**13. Write a C program to convert Hexadecimal to Octal number system.**

**CODE –**

**#include <stdio.h>**

**#include<string.h>**

**void main()**

**{**

**char hex[17];**

**long long octal, bin, place;**

**int i = 0, rem, val;**

**printf("Enter any hexadecimal number: ");**

**gets(hex);**

**strupr(hex);**

**octal = 0ll;**

**bin = 0ll;**

**place = 0ll;**

**for(i=0; hex[i]!='\0'; i++)**

**{**

**bin = bin \* place;**

**switch(hex[i])**

**{**

**case '0':**

**bin += 0;**

**break;**

**case '1':**

**bin += 1;**

**break;**

**case '2':**

**bin += 10;**

**break;**

**case '3':**

**bin += 11;**

**break;**

**case '4':**

**bin += 100;**

**break;**

**case '5':**

**bin += 101;**

**break;**

**case '6':**

**bin += 110;**

**break;**

**case '7':**

**bin += 111;**

**break;**

**case '8':**

**bin += 1000;**

**break;**

**case '9':**

**bin += 1001;**

**break;**

**case 'A':**

**bin += 1010;**

**break;**

**case 'B':**

**bin += 1011;**

**break;**

**case 'C':**

**bin += 1100;**

**break;**

**case 'D':**

**bin += 1101;**

**break;**

**case 'E':**

**bin += 1110;**

**break;**

**case 'F':**

**bin += 1111;**

**break;**

**default:**

**printf("ERROR.");**

**}**

**place = 10000;**

**}**

**place = 1;**

**while(bin > 0)**

**{**

**rem = bin % 1000;**

**switch(rem)**

**{**

**case 0:**

**val = 0;**

**break;**

**case 1:**

**val = 1;**

**break;**

**case 10:**

**val = 2;**

**break;**

**case 11:**

**val = 3;**

**break;**

**case 100:**

**val = 4;**

**break;**

**case 101:**

**val = 5;**

**break;**

**case 110:**

**val = 6;**

**break;**

**case 111:**

**val = 7;**

**break;**

**}**

**octal = (val \* place) + octal;**

**bin /= 1000;**

**place \*= 10;**

**}**

**printf("Octal number = %d", octal);**

**}**

**14. Write a C program to convert Hexadecimal to Decimal number system.**

**CODE –**

**#include <stdio.h>**

**#include <math.h>**

**#include <string.h>**

**int main()**

**{**

**char hex[17];**

**int i = 0, val, len, decimal, place;;**

**decimal = 0;**

**place = 1;**

**printf("Enter any hexadecimal number: ");**

**gets(hex);**

**len = strlen(hex);**

**len--;**

**for(i=0; hex[i]!='\0'; i++)**

**{**

**if(hex[i]>='0' && hex[i]<='9')**

**{**

**val = hex[i] - 48;**

**}**

**else if(hex[i]>='a' && hex[i]<='f')**

**{**

**val = hex[i] - 97 + 10;**

**}**

**else if(hex[i]>='A' && hex[i]<='F')**

**{**

**val = hex[i] - 65 + 10;**

**}**

**decimal += val \* pow(16, len);**

**len--;**

**}**

**printf("Decimal number = %d", decimal);**

**}**